BTL-3000

SERIES OF WHOLE-BODY TUBS
TYPE KAPPA

USER'S MANUAL

v100z1RK2003/04/14EN

CONTENTS

1. INSTRUCTIONS FOR USE 3
1.1 Outward Appearance 4
1.2 Individual Types and Equipment of Kappa Tubs 4
1.3 Control Elements 5
1.3.1 First Start 5
1.3.2 Control of Underwater Massage 6
1.3.3 Control of Air Massage System 6
1.3.4 Control of Hydromassage System 6
1.4 Optional Supplementary Systems and Accessories 6
1.4.1 Disinfection 6
1.4.2 Light 6
1.4.3 Electric Heating 6
1.1.1 Filtration 7
1.1.2 Preparation for Connection to Recycling System 7
1.1.3 Preparation for Supply of Carbonated Water 7
1.1.4 Steps 7
1.2 Maintenance 8
1.2.1 General Principles of Cleaning 8
1.2.2 Cleaning and Disinfection 8
1.2.3 Maintenance 9
1.5 Principles of Secure Handling 9
1.3 Indications 10
1.4 Counterindications 10
1.5 Terms of Guarantee 11
1.6 Acceptance Criteria 11
2 TECHNICAL PARAMETERS 12
1.6 Transport and Operating Conditions 13
1.7 Applicable Standards 13

1. INSTRUCTIONS FOR USE

Kappa 10 - serves for application of whole-body hydromassage whirlpool bath with the possibility of manual underwater massage by a subaqual jet.

Kappa 20 - serves for application of whole-body hydromassage whirlpool bath and air massage pearl bath providing setting of intensity of the pearl bath, with the possibility of manual underwater massage by a subaqual jet.

Kappa 30 - serves for application of whole-body hydromassage whirlpool bath with pulsation and air massage pearl bath providing setting of intensity of the pearl bath, with the possibility of manual underwater massage by a subaqual jet.

Underwater massage can be effectively used for whole-body therapeutic massage or massage of individual body parts. Massage is performed under water by a hose with a massage jet at the end. Therapeutic effect of this type of massage is based on simultaneous acting of mechanical and thermal effects. Combination of appropriate temperature of bath and water flow leads to release of the muscle tonus and to overall relaxation. The pressure of the water flow causes also reactive supply of muscular tissue with blood, using nervous and metabolic effects. Underwater massage is used in treatment of posttraumatic states, fractures, injuries of muscles and joints, in insufficient blood circulation in extremities, in ischial, spastic and weak paralysis and in treatment of obesity. Significant effects of this type of hydrotherapy manifest themselves also in overall physical recondition after large physical strain.

Air massage effect is provided by pearl massage by a flow of compressed air from tiny jets at the bottom of the tub. Air bubbles rise through the bath and gently massage the skin and superficial subcutis by rubbing the body surface. This brings sedative effect which has beneficial influence on both mental and physical state of the patient because it releases him/her from pain and stress. Pearl bath is applied mostly in insomnia, neurosis and other neurological diseases, as well as in diseases of locomotive organs where again its hyperaemic effect is used.

Hydromassage effect is induced by air-supplied water flow from large side jets or from microjets which are ergonomically located against the most stressed areas of the spine. Hydromassage is very helpful in treatment of posttraumatic states and injuries. Hydromassage whirlpool bath is an irritation and tonisation procedure and it is also a part of therapeutic physical education. It is effective in elimination of edemas, improvement of mobility of joints and release of contractures. It brings maximum overall relaxation of organism and therefore is optimal for spas, sanatoria, remedial institutions, sporting facilities and resorts of all kinds.

1.1 OUTWARD APPEARANCE

Hydromassage tubs of the Kappa series are made of progressive and high-quality materials and equipped with top equipment the technology of which predestines it for long-lasting and trouble-free operation.

Construction height of the acrylate skeleton of the tub and the height of the bottom 200 mm above the floor enables use of hoists and lifts for immobile patients and reduces stress of the medical staff that do not need to bend too much at treatment of the patients.

Depending on the type, the tubs are equipped by up to 3 motors (2 pumps and 1 blower) which provide hydromassage and air massage in several circuits with the needed pressure of the medium and with the possibility of pulsation or smooth variation of intensity.

Large enough and clearly organized control panel includes all needed controls which serve for secure and perfect operation of the whole hydromassage equipment. The tub is panelled by covering panels which are adjusted to the shape of the tub. The skeletons of tubs and control panels are supplied in various colours. The covering panels are supplied only in the standard white colour.

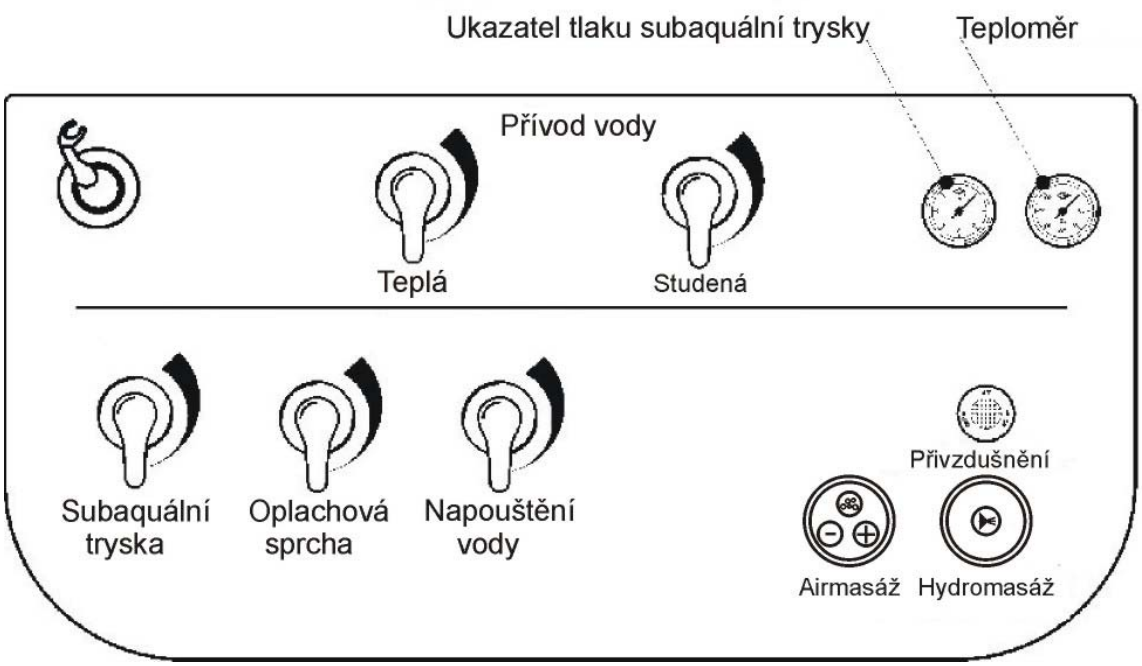
1.2 INDIVIDUAL TYPES AND EQUIPMENT OF KAPPA TUBS

Kappa 10 – subaqual jet with the possibility of smooth setting of water pressure, analogue indicator of water pressure in the subaqual jet, thermometer, hydromassage with 4 jets and 6 microjets, electronic control.

Kappa 20 -subaqual jet with the possibility of smooth setting of water pressure, analogue indicator of water pressure in the subaqual jet, thermometer, air massage, setting of intensity of air massage, 22 air massage jets, hydromassage with 6 jets and 6 microjets, electronic control.

Kappa 30 - subaqual jet with the possibility of smooth setting of water pressure, analogue indicator of water pressure in the subaqual jet, thermometer, air massage, setting of intensity of air massage, 30 air massage jets, hydromassage with 6 jets and 6 microjets, hydromassage pulsation, electronic control.

1.3 CONTROL ELEMENTS



The above displayed panel belongs to the tubs Kappa 20 and Kappa 30. The Kappa 10 type have only control of hydromassage. The principle of control is the same or very similar for all types of tubs.

Control and operation are intuitive and very comfortable.

- Water supply – divided into cold and warm water.
- Indicators of water temperature and pressure in the subaqual jet.
- Subaqual jet – starting of the pump and control of pressure in the subaqual jet.
- Rinse shower – tap for the rinse shower which is located in the upper left corner of the control panel and serves for rinse of the interior of the tub skeleton after treating a patient.
- Filling – to start water filling
- Air massage of the back and buttocks – control element which enables to aim the air flow in the air massage system .
- Hydromassage and Air regulation – at start of hydromassage the respective pumps switch on and force water in through the jets and microjets towards individual body parts of the patient. Air regulation enables to make air flow through the jets together with water.

1.3.1 FIRST START

After installation disinfect the tub (see **1.2.1 General Principles of Cleaning**) and rinse its interior by the hand shower. To start the hand shower open its tap on the control panel and press the lever on the shower by the thumb.

Before supply of water set the required temperature by the two taps for warm and cold water and then open the ball valve in the indicated direction.

After filling the tub (the water top must be at least 2 cm above the highest microjet) select the required hydrotherapy.

1.3.2 CONTROL OF UNDERWATER MASSAGE

- Take the jet and dip it in water. Turn the lever of the valve of the subaqual jet in the indicated direction, the circulation pump motor starts running.
- The pump forces water from the piping to the subaqual jet for pressure water massage. By turning the valve regulate the intensity of massage. The water pressure in the subaqual jet can be simultaneously monitored on the manometer.

CAUTION: Never start the subaqual jet without water in the tub, otherwise the pump could be irreparably damaged !!!

1.3.3 CONTROL OF AIR MASSAGE SYSTEM

- To start air massage press once the respective button "AIRMASSAGE" .
- To decrease the intensity of air massage press the "-" (minus) button, to increase press the "+" (plus) button.
- Second pressing of the same button activates variation of intensity.
- Third pressing of the same button switches air massage off.

1.3.4 CONTROL OF HYDROMASSAGE SYSTEM

- To start hydro massage press once the respective button "HYDROMASSAGE"
- Second pressing of the same button in the KAPPA 30 tub activates pulsation, in the KAPPA 20 tub switches hydromassage off.
- Third pressing of the same button in the KAPPA 30 tub switches hydromassage off.

1.4 OPTIONAL SUPPLEMENTARY SYSTEMS AND ACCESSORIES

1.4.1 DISINFECTION

At the customer's request the tub can be equipped with the disinfection system. This system consists of the control button, vessel with inlet for the disinfectant and precise electronic dispenser.

After ending of the therapy press the disinfection button. The disinfectant is dispensed into the used water in the tub. Switch on all available systems (hydromassage and air massage) so that the disinfectant dissolves in water. Let the disinfectant act for the time stated by its producer. Disinfectants are listed in chapter 1.2.2 Cleaning and Disinfection.

After disinfection of the piping let water out and switch on air massage for 30 seconds so as to force water out of the air massage system.

The pipes and hydromassage pumps are so designed that all water from these parts also runs out when draining the tub.

Follow chapter 1.2.2 Cleaning and Disinfection.

1.4.2 LIGHT

The tub can be equipped with a light to illuminate the patient and thus help the staff in orientation during the underwater massage.

1.4.3 ELECTRIC HEATING

At the customer's request the tub can be equipped with 3 kW electric heating. This heating is designed to heat water up only by several degrees, to keep it on the constant temperature which is optimum for therapy.

The acrylate skeleton that the tub is made of has excellent thermal-insulating properties which ensure long-lasting constancy of the water temperature. In case that water is filled in the tub for a long time, this heating enables to reach the required temperature.

At the customer's request the heating system can be during installation of the tub set to the required temperature which will be automatically kept by the thermostat. The heating is dependent on the operation of the hydromassage circuit – to start heating first switch on the hydromassage circuit.

1.1.1 FILTRATION

In some locations there occur problems with mechanical impurities which are released in the water mains. The best solution is to equip the main inlet to the building by the filter for mechanical impurities which must be designed accurately for the site (size of mechanical particles and maximum flow). If the filters cannot be installed on the inlets there should be a filter installed in the hydromassage circuit which will automatically filter water after switch-on of hydromassage.

It is necessary to check these filters periodically and change the filter cartridge when needed. The interval depends on the disposition and state of water mains.

1.1.2 PREPARATION FOR CONNECTION TO RECYCLING SYSTEM

When being manufactured the tubs can be adapted for connection to the system of water recycling. These tubs are equipped with special system for filling and draining of recycled water.

Recycling system usually consists of two recycling tanks where the used water is monitored and purified so as to comply with valid hygienic standards. Recycling is very demanding as for space and water piping, so it is necessary to take it into account already in the construction design.

1.1.3 PREPARATION FOR SUPPLY OF CARBONATED WATER

When being manufactured the tubs can be adapted for connection to the carbonating machine. These tubs are equipped with special system for filling and intake of carbonated water.

1.1.4 STEPS

With the tub there can be delivered steps for facilitation of access to and from the tub. The steps are designed to make the access to the tub manageable both for tall and small patients.

The steps consist of two stands with nonslip surface. They are made of aluminium which makes them stable as well as easily manipulable, especially thanks to low weight. The white glazed coating highlights their elegant design and enables trouble-free maintenance and disinfection.

The steps can be delivered without handrails or with the right or left one.

1.2 MAINTENANCE

1.2.1 GENERAL PRINCIPLES OF CLEANING

Foreign substances (paint, putty, etc.) on the tub surface remove carefully, best by a wooden spattle. Never use **steel wool, metallic sponges, knifes or scouring washcloth**. Stains of oil or grease can be removed by **denatured alcohol**.

Never use strong solvents such as **acetone, paint thinners, benzine, ammonia or chloride agents, or abrasive polish**.

For metallic parts use special **milk or paste**, like for polishing of a car. Finally wash the cleaned parts by warm water and disinfect them by disinfectants approved by the responsible health officer.

1.2.2 CLEANING AND DISINFECTION

Regular cleaning after therapy

- After each therapy let water out by the red ball valve at the side of the tub, clean the tub by proper cleaner approved by the health officer (e.g. Chirosan by Bochemie s.r.o.) and rinse it by the shower.
- In the hydromassage system the used water automatically runs out of the hoses (the hoses decline to the outlet). The outflow from the pump is provided by a drain.
- To force the used water out of the air massage hoses start all air massage circuits for at least 30 seconds. Within this time all water is perfectly forced out of the piping.
- The equipment's parts which come into touch with the patient should be cleaned by agents approved by the responsible health officer.

Regular cleaning and disinfection of pipes 4x per month

Since pollution by mineral sediments and scale considerably affects the activity of internal parts of the system (piping, pump), it is necessary to clean and disinfect the tub regularly.

a) Fill the tub with warm water, like before bath.
b) Pour in the water the exact manufacturer-recommended amount of disinfectant (e.g. Savagro by Bochemie s.r.o.).
c) Run the system for approx. 10 – 15 minutes.
d) Let water out.
e) Fill the equipment with warm water and rinse the whole system.
f) Run the system for approx. 10 – 15 minutes.
g) Let water out.
h) To force the used water out of the pipes let all pearl bath circuits run for at least 30 seconds.

Special cleaning in case of use of non-standard water

If the tub is operated in a place with non-standard water (very hard water, mineral water, etc.) it is necessary to clean it and rinse the hydromassage system at least once a week. The frequency of cleaning depends on quality of water (can be found out by water analysis). For sediments use special agents for dissolution. In case of neglect of proper maintenance and cleaning, complaints will not be accepted.

1.2.3 MAINTENANCE

The service inspection including check of all parameters of the equipment and possible service actions must be performed in intervals complying with the valid law, not longer than 36 months. The inspection is performed by the BTL authorized service department on the basis of the user's order. If the inspection is not done in the stated term the manufacturer does not guarantee the technical parameters and safe operation of the product.

1.5 PRINCIPLES OF SECURE HANDLING

This device has applied parts of type B.

The equipment does not use any medicaments or other substances which would be its integral part or would be applied by means of it.

- Before first switch-on of the equipment read carefully the User's Manual.
- The equipment must be professionally installed by an authorized representative of BTL.
- Installation and service instructions are not included in this Manual.
- All staff to use the equipment must be instructed of the way of operation, maintenance and checking of the equipment and of the safety principles.
- The electrical cabling which the equipment will be connected to must be installed and tested according to the existing valid standards (IEC 364). If you are not sure that the mains are completely OK get them inspected by an inspection engineer.
- Check if the parameters of the mains correspond to the requirements of the equipment according to Chapter 2
- The equipment is designed for work in the environment defined in Chapter 2. It must not be used in explosive environment. The equipment must not be used in connection with inflammable anaesthetics or oxidizing fluids (O_2, N_2O, etc.).
- Inspect the equipment thoroughly before each use (surface of the tub, functions of displays and controls, etc.); in case of any inconsistency stop using the equipment and contact the authorised service department. If the equipment's behaviour differs from the function described in this Manual stop using the equipment and contact the authorised BTL service department.
- If the equipment shows any defect or if you have doubts about its correct function, terminate the therapy immediately. If you do not determine the source of uncertainty after thorough study of the Manual, contact the authorised service department. If the equipment is used out of accord with this Manual or is used even if it shows functional differences from this Manual, the user is responsible for the damages caused by the equipment!
- Do not dismantle the equipment in any case, removal of protective covers implies the danger of electrical injury.
- All material and parts which come into direct contact with the patient's body must comply with the respective standards related to irritability, allergization, toxicity, genotoxicity and carcinogeneity (ISO 10993-1, ISO 10993-3, ISO 10993-5). The user is responsible for all these materials and parts if not supplied by the BTL equipment supplier.
- The equipment does not use or produce any toxic substances during its operation, storage or transport under the stated conditions.
- Before start of therapy check if all set parameters correspond to your intents.
- To terminate therapy press the respective control element, not the mains switch.
- The equipment and the accessories must not be used in a way out of accord with this User's Manual.
- At work with the equipment use the recommended protective tools.
- The equipment must be placed out of reach of children.
- Main switch use for: switching on and off in operational breaks
  at repairs and service
  at weekend downtimes
  in case of need of fast shut-down
- Do not add to the bath any liquid agents or powders, especially soaps, foams and oils, if not particularly designed for hydrotherapy systems.
- Do not leave persons with restriction in movements, mentally affected persons and children, unattended.
- Near the tub it is forbidden to use any portable electric device! Other electric devices in the room and their parts under voltage must be located and fixed so that they cannot fall into the bath!
- Put the tub into operation before the patient's entry – to prevent him/her from an unpleasant feeling at the first emission of water and air from the jets.

- Check the pressure of water in the subaqual jet. When underwater therapy runs at full power the water pressure can reach approx. 0.4Mpa, which is a value that could harm the patient in case of unprofessional handling.
- Do not start the equipment if the tub is not full of water, otherwise the water pump could be damaged.
- After filling up the tub all jets must be under water.
- Before starting of the motor check if there are not any undesired things such as cloth parts, sponges and anything that could be sucked into the pump, which would cause clogging of the pipe and reduction of power or even damage of the pump.
- The equipment contains components which could cause electromagnetic interference.
- It is recommended to separate the patients' rooms from the staff rooms so that the noise level in the staff rooms is reduced (unlike the patients, the staff is exposed to noise for approx. 8 hours a day). In addition it is suitable to divide the room (at least by curtains) to separate parts, one therapy and one patient each. In case of need extend the anti-noise measures.
- If after many years of operation it is necessary to discard the hydrotherapy equipment it is necessary to contact a specialized company dealing with this activity, or the supplier or manufacturer who will advise you on the process of liquidation, or to discard of it in a way which is usual for this type of devices. The equipment does not contain any toxic materials which could harm the environment in case of normal way of liquidation.

1.3 INDICATIONS

Underwater massage

- Posttraumatic states in muscles and joints
- Post-poliomyelitis states
- Muscular atrophy
- Lumboischiadic syndrome
- Arthrosis
- Bechterev's Disease
- Burger's Disease
- Myalgia

Air massage

- Vasomotor neurosis, climacteric neurosis
- Insomnia
- Neurologic diseases
- Diseases of locomotive organs

Hydromassage

- Post-operative states, states after injuries of locomotive organs
- Muscular atrophy
- Post-poliomyelitis states
- Peripheral paresis
- Trophic changes in extremities

1.4 COUNTERINDICATIONS

The list of counterindications is the list of cases in which the manufacturer does not recommend application of the selected therapy. Indeed the professional workplaces who are aware of the possible consequences do not need to observe these listed counterindications – all responsibility for use of the therapy, however, lies with them.

Underwater massage

- Acute inflammations
- Haemorrhagic diathesis
- Tumours in skin and subcutis
- Pregnancy
- States after heart attack, cardiovascular disorders
- Hypertension above 200/100mmHg
- Kidney diseases
- Varixes, post-trombophlebitis states, states after ulcus cruris
- Active TB
- Allergy to therapeutic salts used in the bath
- Menstruation
- Skin wounds (including non-bleeding)
- Eczema

Air massage

- Active TB
- Allergy to therapeutic salts used in the bath
- Menstruation
- Skin wounds (including non-bleeding)
- Eczema

Hydromassage

- Active TB
- Allergy to therapeutic salts used in the bath
- Menstruation
- Skin wounds (including non-bleeding)
- Eczema

1.5 TERMS OF GUARANTEE

The manufacturer provides guarantee 24 months from the date of delivery of the hydromassage tub. The guarantee expires if the equipment has been used out of accord with this Manual or in case of an unqualified intervention in the equipment. The guarantee does not apply to mechanical damage of the skeleton and panelling of the tub, neither to damage of the pump caused by incorrect handling (operation without water).

In case of any defect always contact the authorized BTL service department.

Installation of tubs must be done by qualified personnel with BTL accreditation. In case of "amateurish" installation the supplier does not guarantee for the installation part of the hydromassage equipment and the defects connected with unprofessional installation. Guarantee does not apply for these defects.

1.6 ACCEPTANCE CRITERIA

When accepting the tub check if:

- the skeleton, frame and panelling of the hydrotherapy tub are not mechanically damaged and are completely OK
- the tub does not leak – there are no marks of water on the control panel and under the tub,
- all hydrotherapy subsystems and their control are functioning and trouble-free

2 TECHNICAL PARAMETERS

Type	**Kappa 10**	**Kappa 20**	**Kappa 30**
Material of the skeleton	Acrylate	Acrylate	Acrylate
Maximum volume of the tub [l]	450	450	450
Usable volume of the tub [l]	375	375	375
Time of filling [min]	5	5	5
Time of drainage [min]	3	3	3
Weight without water [kg]	I50	I63	I67
Underwater massage with water pressure indicator	x	x	x
Hydromassage system (whirlpool)	x	x	x
Number of water jets	4	6	6
Number of microjets	6	6	6
Air-supply of hydromassage jets	x	x	x
Hydromassage pulsation	-	-	x
Air massage system (pearl bath)	-	x	x
Number of air massage jets	-	22	30
Regulation of intensity	-	x	x
Air massage system with intensity variation (pulsation)	-	x	x
Rinse shower	x	x	x
Power supply	230V/50Hz	230V/50Hz	230V/50Hz
Optional systems and accessories			
Disinfection	o	o	o
Heating 3kW	o	o	o
Filtration	o	o	o
Preparation for connection to recycled water	o	o	o
Supply of carbonated water	o	o	o
Steps	o	o	o

"x" – standard, "o" – optional, "-" – no

	Kappa 10	**Kappa 20**	**Kappa 30**
Power supply			
max. input	2700VA	3500VA	3500VA
mains voltage ~ 198 V to 252 V (230 V nominal), alternating	Yes	Yes	Yes

frequency 50 Hz	Yes	Yes	Yes
equipment protection class I (according to IEC 536)	Yes	Yes	Yes
Internal chemical sources	No	No	No
Display elements			
7-segment display	No	No	No
Classification			
applied parts of type	B	B	B
class according to MDD 93/42/EEC	IIb	IIb	IIb

1.6 TRANSPORT AND OPERATING CONDITIONS

Identification BTL-3000 Series

Operating conditions

ambient temperature	+ 10 °C to + 40 °C
relative humidity	30 % to 75 %
atmospheric pressure	700 hPa to 1060 hPa
position	on legs
type of operation	continuous

Transport and storage conditions

ambient temperature	- 10 °C to + 55 °C
relative humidity	25 % to 85 %
atmospheric pressure	650 hPa to 1100 hPa
position	on legs
storage time	max. 1 year
other conditions	transport only in the supplied packaging

1.7 APPLICABLE STANDARDS

No.	Name	IEC, EN, ISO, MDD
1	Medical electrical equipment Part 1: General requirements for safety	IEC 601-1
2	Amendments to IEC 601-1	A2, A11 a A12
3	Medical electrical equipment Part 1: General requirements for safety 2. Collateral Standard: Electromagnetic compatibility. Requirements and tests	IEC 601-1-2
4	Industrial, scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55011
5	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Electrostatic discharge immunity test - Basic EMC Publication	IEC 61000-4-2

6	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 3: Radiated, radio frequency, electromagnetic field immunity test	IEC 61000-4-3
7	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transients/burst immunity test - Basic EMC Publication	IEC 61000-4-4
8	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 5: Surge immunity test	IEC 61000-4-5
9	Medical devices - Risk Analysis	EN 1441
10	Biological evaluation of medical devices - Part 1: Evaluation and testing	ISO 10 993-1
11	The Medical Devices Directive 93/42/EEC	MDD 93/42/EEC

Manufacturer

MEDICAL TECHNOLOGIES, s.r.o.
Heleny Malirove 11
169 00 Praha 6
Czech Republic

Representative:

BTL Industries Limited
Suite 401 Albany House
324-326 Regents Street
London
WIB 3BL
United Kingdom

tel: +4420 8371 2267
fax: +4420 8371 2270
email: btl@cobus.net

Sales Department

BTL, s.r.o.
Heleny Malirove 11
169 00 Praha 6
Czech Republic
Tel.: (420) 220 517 012, 220 514 753
Fax: (420) 220 515 520
E-mail: sales@btlnet.com
http://www.btlnet.com

© All rights reserved. No part of this manual may be reproduced, saved in a research centre or transferred by any means incl. electronic, mechanic, photographic or other records without previous approval from MEDICAL TECHNOLOGIES, s.r.o.

BTL is a registered trademark of MEDICAL TECHNOLOGIES, s.r.o.

MEDICAL TECHNOLOGIES, s.r.o operates a policy of continuous development. Therefore, it reserves the right to make changes and improvements to the Product described in this manual without prior notice.

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either expressed or implied, are made in relation to the accuracy, reliability or contents of this document. MEDICAL TECHNOLOGIES, s.r.o reserves the right to revise this document or withdraw it at any time without prior notice.